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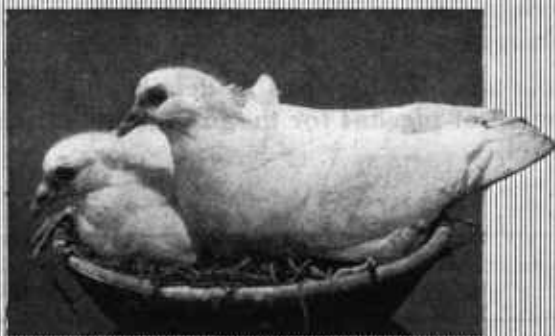
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SQUAB RAISING



PIGEON raising is conducted successfully as a special business, but is better adapted to serve as a side issue on a small scale in towns and cities and on general farms.

A reasonable profit on the investment and labor required can be made by those who give the pigeons careful and regular attention.

There are a number of good breeds of pigeons from which to choose for squab raising, but special care in selecting and acquiring the foundation stock is very essential, as it is difficult for the novice to determine either the age or the sex of pigeons by their appearance.

This bulletin discusses in detail the general management of pigeons for the production of squabs for market.

Washington, D. C.

Issued September 13, 1915
Revised May, 1930

*Re: 200 lbs. Pigeons 4-6 wks
100 lbs. 100 lbs. 100 lbs.*

SQUAB RAISING

By **ALFRED R. LEE**, *Associate Poultry Husbandman, Animal Husbandry Division,
Bureau of Animal Industry*

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PIGEONS are kept in all parts of the United States, but most of the large, squab-producing plants are found near the large cities in the Northeastern and Central Western States and on the Pacific coast. Prolific pigeons that produce large squabs are confined in pens on these squab-producing plants. Common pigeons, which are less prolific and produce small squabs, are kept as a side issue on many general farms throughout the country and are usually allowed to fly at will. Better results would be obtained if good, squab-producing breeds of pigeons were kept and confined in pens.

POSSIBILITIES IN THE BUSINESS

Pigeon raising may be conducted successfully as a special business in towns and cities and on general farms, but is better adapted to serve as a side issue on a small scale. The demand for squabs, especially in large cities, is increasing, and squabs are often used in place of game. The prices received are high enough to make squab raising return a fair profit wherever there is a good market. An average annual return, above cost of feed, of from \$2 to \$2.50 a pair of breeders is considered good on successful plants producing market squabs only. Some of the large, successful pigeon farms make a business of selling breeding stock and produce squabs for meat as a side issue only.

Many persons can keep pigeons successfully as a side issue, although it requires constant oversight and careful attention to details. The greatest difficulties which confront the beginner in the raising of pigeons are procuring good breeding stock and finding a good market for the product of a small flock. Pigeons may be a profitable source of income on many general farms if they are properly handled and if a good market can be found for the

squabs. There have been many failures in squab raising, because the profit in the business has been greatly overestimated and because the care of the stock has been regarded as something in which anyone could succeed without training or experience.

BREEDS SUITABLE FOR SQUAB RAISING

There are many breeds of pigeons, but only six are used extensively for producing squabs for meat in this country—King, Carneau, Swiss Mondaine, Homer, Runt, and Hungarian. These breeds make up what is called the utility class of pigeons, and all, with the exception of the Swiss Mondaine, contain several varieties which are used to some extent for squab raising. Only the most popular variety of each breed is described in this bulletin, as the less common varieties have the same type, shape, and size, and differ only in color.



FIGURE 1.—White King (male). One of the most popular squab producers

The best breed to use depends on the market, but the greatest demand is for good-sized squabs which have light-colored skins. The White Kings, Red Carneaux, White Swiss Mondaines, and Black Hungarians are good producers of squabs of this type. Many restaurants and hotels prefer a smaller squab, which is cheaper; the Homer is best adapted for this trade. The Runt is the best breed to keep if an extra-large squab is desired.

The small, common pigeon is probably most widely distributed on farms. These pigeons produce small squabs, frequently of poor quality, and are not so prolific as the improved breeds.

KING

The White King was produced in the United States about 1891 by crossing the white varieties of the Runt, Homer, Maltese, and Duchess. This is a good-sized breed, the old and the young cock weighing 26 and 24 ounces and the old and the young hen 24 and 22 ounces, respectively. It is a very good producer of light-colored squabs, and is one of the most popular breeds to keep for this purpose. The body should be blocky, with broad shoulders and good depth from the back to the keel. The general appearance should be of an upright "cobby" type, as shown in Figure 1. The carriage is upright with the tail just clearing the ground when the bird is standing in its natural position. The head is moderately large, with a round skull.

The plumage of the White King is white throughout and should be tight and close fitting.

The Silver is the only other standard variety of the King breed.

Also very good (see)
see N.Y. Cont. with R.H.S.

CARNEAU

The Carneau originated in France and was not brought into the United States until about 1900. Although slightly smaller than the King, it is a good-sized bird, the old and the young cock weighing 24 and 23 ounces, and the old and the young hen 23 and 22 ounces, respectively. It is also one of the most popular squab producers in this country, and is an excellent breeder of high-quality squabs. The body is short, compact, and full-breasted, with an upright carriage and moderately short wings and tail, as illustrated in Figure 2. The head is of moderate size, broad between the eyes, and has a gradual, rounding curve over the skull.

The Red Carneau is the most popular variety of this breed for squab production. The surface plumage should be of a deep chestnut red throughout, with the color penetrating to some extent into the undercolor.

Other standard varieties of the Carneau are the Yellow, Black, White, Rosewing Red, and Rosewing Yellow, but the last three are not common.



FIGURE 2.—Red Carneau (male), another popular squab producer

SWISS MONDAINE



FIGURE 3.—White Swiss Mondaïne. This breed is rapidly becoming popular for squab production

The Swiss Mondaïne was developed in the United States by crossing the White Runt with some other large, white pigeon. The term "Swiss," as applied to the breed, is based on unverified reports of importations from Switzerland, but there is no pigeon of this type in that country. A somewhat similar breed called the French Mondain, of which there are several kinds, is bred in France but kept to only a small extent in the United States.

The Swiss Mondaïne is slightly larger than the King. The legs are slightly longer and the body and neck are longer and more slender. The head is of medium size and is full in front. This breed shows great length in every part, which gives it the long, sweeping appearance shown in Figure 3. It is an excellent squab-producing breed, the old and the young cock weighing 27 and 24 ounces, respectively, and the old and the young hen weighing 24 and 21 ounces. This breed is neither so well known nor so widely distributed as the King or the Carneau.

*French Mondain and several varieties
white and popular*

The plumage of the White Swiss Mondaine, which is the only standard variety of the breed, is white in every section. It is a close-feathered breed with clean legs. The flight feathers of the wing are very long, but the wing should be carried up tightly to the body.

HOMER

The Homer (fig. 4) is not usually classed as one of the utility breeds, but it is the oldest breed of pigeons in this country and has been used very extensively for squab production, the birds used originally for this purpose having been of flying Homer breeding. The Homer is primarily a flying pigeon kept for racing purposes, and derives its name from the fact that it has a remarkable faculty for returning to its home. Because of this trait it is necessary to keep this breed confined if the pigeons have been purchased.

The Homer is the most prolific breeder and the best feeder of all the breeds and is a very desirable breed to keep if a medium-sized rather than a large squab is desired. It may often be kept to advantage with one of the larger breeds.

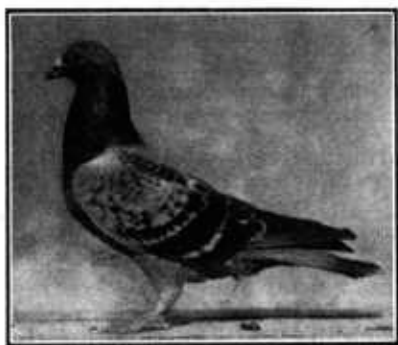


FIGURE 4.—Homer (male). A very good producer of small squabs

The bird should be of medium size and have a neat, trim, compact appearance. The breast and back should be broad and well muscled.

Three distinct lines of Homers are bred, namely, the flying, the exhibition, and the show. These three kinds differ materially in shape, size, and head points. Homers used for squab production have been selected and bred from either the flying or the exhibition lines, as the show Homer is not adapted for producing market squabs. Little attention has been

given to color in breeding the Homer either for squab production or for racing, but the Blue, Blue Checker, and Black Checker are the most common varieties. The color of the Blue variety is an even shade of light grayish blue in all sections except the head, neck, tail, and ends of the wings, which are much darker. The Blue Checker variety has a ground color of light grayish blue, and the back and wings are evenly checkered with black. Size is very important in market squabs, and only large-sized Homers are suitable for squab production.

RUNT

The Runt in this country is said to be descended from the Spanish common pigeon. As it is the largest of the breeds kept here its name is rather misleading. The Runt is characterized by a very large body, giving an appearance of massiveness and great strength, as shown in Figure 5. The head is large and broad between the eyes, and the top of the skull is oval. The body is blocky, the breast broad and deep, and the back broad. The Runts are considerably larger than the other squab breeds, the old cock weighing 3 pounds, the old hen and the young cock each $2\frac{3}{4}$ pounds, and the young hen $2\frac{1}{2}$ pounds. The Runt lacks the upright, "cobby" type of the King,

the breast being carried only slightly above horizontal, with the tips of the wings resting on the tail.

Runts are kept to some extent for squab production, but are usually not so good, either as breeders or as feeders, as the smaller breeds. They are sometimes used to cross with the small breeds, but as a rule better results are obtained by keeping the breeds pure. Runts are frequently kept in pairs in individual pens, as they often fight and injure one another when kept even in moderate-sized flocks.

The White Runt is by far the most popular variety of this breed for squab production, while the six other standard varieties, the Blue, Black, Red, Yellow, Silver, and Dun, are only occasionally used for this purpose. The plumage of the White Runt should be pure white in all sections. The feathers should be tight fitting and the wings and tail of moderate length only. This breed, as well as all squab producers, should have shanks and toes free from feathers.



FIGURE 5.—White Runt (male). The largest variety of pigeon but usually only a fair producer

HUNGARIAN

The Hungarian pigeon, which was introduced from Hungary, differs very materially in type from the other breeds commonly kept for squab production. It has a



FIGURE 6.—Black Hungarian (male). A good squab producer but bred more for exhibition

short, compact, solid body, a long neck, high tail, and long legs, as shown in Figure 6. The standard weights are 26 ounces for the old cock, 24 ounces for the old hen and the young cock, and 22 ounces for the young hen. Care should be taken to avoid breeding the birds which are very high on their legs, as the reproduction of that type will reduce the heavy, square body so essential in the production of good market squabs. The Hungarian, although a good squab producer, is not kept so extensively for this purpose as the other breeds discussed, more attention having been given to selecting the breed for standard color, making it a very attractive pigeon for exhibition.

The Black Hungarian, shown in Figure 6, is the most widely distributed variety of this breed, but no one variety is especially outstanding in numbers, as is the case with the other squab-producing breeds. This variety has almost as much white as black in its sur-

face color, but the black markings are much more prominent. The black is of a deep, even shade, with a white stripe resembling a tape marking extending over the crown of the head, down the back of the neck, widening as it goes, thus forming a triangle with the narrow, pointed vertex at the back of the neck. The white extends in a narrow stripe around the front of each wing and comes together from both sides in an even curve, where it is merged into the white of the lower part of the breast, legs, and thighs, meeting over the rump. The breast is covered with a large, black, pear-shaped bib which extends up to the head. The tail and wings are black except for 8 or 10 of the long flight feathers in each wing, which are white.

SELECTING BREEDERS

Good breeding stock is one of the prime essentials of success in squab raising. It is advisable to buy pigeons from reliable breeders and, if possible, from those who guarantee their product. Many failures in squab raising have been due to poor stock, because the prospective producer either bought old pigeons past their period of usefulness or obtained a surplus of male birds. It is difficult to determine by casual observation the age and the sex of pigeons, and this makes it difficult for the buyer to determine the value of the stock.

Constant and careful culling must be followed to make squab production profitable. This requires that the nests should be examined frequently and careful records kept of the squabs. The medium-sized breeds of pigeons which do not raise at least six pairs of squabs annually to market age should be either culled or remated. There is a great difference in the value of pigeons as squab producers, even when of the same variety, making it advisable to select the birds individually for their vigor and productiveness, for the quality, number, and size of their squabs, and for their ability properly to feed and rear their offspring. Dark-colored skin, legs, or beak indicates poor quality of flesh, and should be avoided by selecting birds for breeding which have white or pinkish-white skin and light-colored legs.

Young pigeons, less than a year old, which have mated and begun to breed, are commonly purchased to begin pigeon keeping. Pigeons are most valuable as squab producers when from 2 to 5 years old, although many breed until they are about 8 years old. Homers will breed at 6 months of age but do best if not mated until they are 7 months old. The larger breeds, such as the King, breed at from 7 to 8 months but give best results if mated at 9 months of age. The best breeding results are obtained if the young birds are not allowed to breed until they are well matured.

Squabs hatched in April, May, and June make the best breeders, while their market value as squabs is comparatively low at that time of the year. The first four or five sets of squabs produced by young pairs should be marketed and only those from older birds saved for breeding. Those which are to be saved for breeding should be banded as soon as their feet are large enough to hold the bands, usually when from 7 to 10 days old, so that a record of their breeding can be kept. Numbered, seamless bands, which are

slipped over the squabs' feet, are used to keep pedigree records. The young pigeons are commonly removed from the breeding pen and put into a pen by themselves after they are able to fly about and pick up their own feed. A catching net or bag made of large-mesh cotton netting, with the mouth or top about 18 inches in diameter, is very useful for catching pigeons.

MATING

Pigeons mate in pairs and usually remain with their mates throughout life, although the mating may be changed if desired. The presence of unmated pigeons (especially males) in the pigeon loft is a source of much trouble and usually prevents profitable results; therefore it is very essential that only mated birds be kept in the breeding pens.

It is difficult for the novice to distinguish sex in pigeons, as it can be determined only by the general appearance, walk, carriage, and actions of the breeders. The male is larger and coarser than the female, especially in the head and neck, and is much more aggressive. The male struts about, making a cooing noise, and drags his tail on the ground; but the female rarely struts or cooes and she holds her body more horizontally than the male. This strutting of the male tends to make the ends of his tail feathers rough. A very aggressive young male may be used in the pen as a decoy to drive the females so that the latter may be separated from the flock. The pelvic bones, which are close together and hard in the male, are spread apart in the female after she has begun to lay, and the female then has a tendency to waddle when walking.

Two methods of mating are used, natural and forced, and either will give good results. Unmated males and females are kept in a pen in natural mating and allowed to select their own mates, which is usually indicated by the male's billing with and driving the female. If properly mated the pair will commence to build their nest and will be found together at night, while unmated birds usually remain alone. Newly mated pigeons may be allowed to build a nest and lay eggs in the mating pen to be sure that they are well mated.

Forced matings may be made if the sex of the pigeons is known. A male and a female which are to be mated are confined in a mating coop. The pigeons should be kept in this mating coop from 6 to 14 days until they become settled. They are removed to the breeding pen as soon as they appear to be properly mated. The nest boxes may be closed and used for mating coops by placing wire frames across the fronts. (Fig. 7.)

Careful selection and mating of breeding stock and constant culling are essential in building up a productive flock of squab producers. Matings should be made to increase the vigor and prolificacy of the stock and to improve the size and color of the squabs. Mating, production, and rearing records should be kept of the pigeons and all unprofitable birds culled. Old pigeons mated with young birds often give good results in breeding, making it advisable sometimes to break up and change a mating as a pair gets old and production decreases. If a breeding pigeon dies, its mate should be removed from the pen and a new mating made. Pairs which produce dark-colored or small squabs should be culled or remated.

Continued close inbreeding is not a desirable practice for the average squab raiser. Inbreeding, however, tends to fix good as well as undesirable characters, making it a means of either great improvement or marked deterioration, depending on how carefully the matings are made. If the pigeons are allowed to mate at will and a pair from the same nest mate together, it is usually advisable to separate and remate such closely related birds.

A simple but accurate system of records should be kept for each pen, showing the band numbers of each pair. In addition to the seamless bands put on when they were squabs the breeding males are usually banded on the right leg and the females on the left leg, so that the sex of the birds in the breeding pen can be readily seen. The use of large, colored, numbered bands makes it easier to keep these records. The nests are numbered and a record kept of the nest occupied by each pair. The fronts of all unoccupied nests should be kept closed so that there is only one double nest for each mated pair.

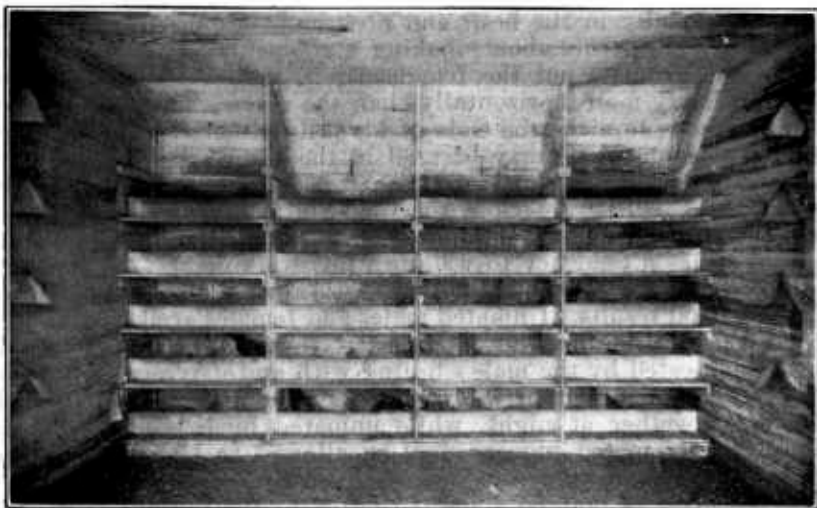


FIGURE 7.—Double nests which can be used as mating coops by placing wire frames across the fronts

HATCHING AND REARING SQUABS

The period of incubation of pigeon eggs is about 17 days. The hen pigeon usually lays one egg, skips a day, and then lays again. If more than two eggs are laid it is advisable to remove the extra ones, as a pair of pigeons can raise only two good squabs at one time. Both the male and the female pigeon sit on the eggs, the male usually sitting from about 8 a. m. until 3 or 4 p. m., while the female stays on the nest the rest of the time. Pigeon eggs are usually fertile if the pigeons are healthy and properly fed. One squab frequently hatches first; and if there are several nests in which one squab outgrows its mate, it may be advisable to sort the squabs in the nests, making the pairs as nearly uniform as possible in size and age. While squabs are in the nest males usually grow faster and are noticeably larger than females. Some birds do not feed

their squabs well, and it is sometimes necessary to transfer such young to other breeders which have only one squab each; but squabs should not be moved any more than is absolutely necessary.

Squabs are reared and fed by both of the parent birds on a thick, creamy mixture called pigeon milk, produced in the crops of the pigeons. Pigeons usually feed their squabs shortly after they themselves are fed and should not be disturbed at that time, thus making it advisable to water them before they are fed. Care should always be taken not to frighten pigeons, and squabs should not be disturbed any more than is necessary. If the parent birds die, the squabs may be removed to a nest where there is only one squab, or they may be fed artificially, although this process takes considerable time.

FEEDING

The feeding of pigeons differs radically from that of poultry in that pigeons are not fed any mash or green feed and they feed their own young. Pigeons should be fed a ration of whole grains and be provided with a constant supply of fresh water and grit. A good mixture of staple grains may be made of four parts, by weight, of small, whole corn, and three parts each of kafir and field or Canada peas, and one part each of hard, red wheat and millet or hempseed. Hempseed should be included in the ration during the molting period. The proportion of corn in the ration may be reduced somewhat during warm weather and increased in winter. Argentine corn is small and is thoroughly dried, making it desirable for pigeons, but any well-dried corn may be used.

Other feeds which may be used with good results in feeding pigeons are maple peas (a foreign product similar to field peas), peanut kernels and garden peas in place of Canada peas, Egyptian corn or milo for kafir, and hempseed or flaxseed for millet, while a small quantity of rice, rape, canary, vetch, and chopped sunflower seed may be fed for variety. Canada peas and peanuts are expensive, but some feed of this kind high in protein is necessary for profitable squab production. Cowpeas are sometimes used to replace Canada peas, but do not give so good results. Soybeans are not relished by pigeons, and contain less vitamin A than Canada peas.

Millet, flaxseed, and hempseed have a rather high vitamin content, and peas or peanuts may also help to supply this need. Yellow corn, because of its vitamin content, is probably a better feed than white corn for pigeons which are confined. A stimulating seed, such as vetch, is sometimes fed as a tonic to breeding birds during the molting period.

A variety of good, hard, thoroughly dried grain is essential to success. Grains which are in poor condition should not be fed to pigeons. New, soft grains, especially wheat and corn, should never be fed to pigeons, as they will cause bad results in the flock, particularly among the squabs. The smaller kernels of whole corn, sold as pigeon corn, are used for pigeons, and flint corn is especially desired. Cracked corn should not be used. Hard, red wheat is considered better than white wheat for pigeons, while some breeders of pigeons prefer a ration without wheat. Only the best grades of wheat should be used.

Commercial mixed pigeon feeds are used extensively in feeding pigeons, especially where only a small flock is kept. The quality of these feeds is usually good, and it is easier to buy them for a small flock than to mix the ration at home, on account of the number of grains used. Dealers often handle two or three grades of feeds, but it usually pays to get the best quality, which contains a considerable quantity of peas, while the cheaper grades have few if any peas in them. The fat, crude protein, carbohydrate, and fiber analyses of these commercial feeds are marked on the bags.

Table 1 gives the composition of the grains most commonly used in feeding pigeons. Peas and peanuts contain a large percentage of protein, which is the most valuable and most expensive constituent of a pigeon feed. The ration mentioned, consisting of four parts, by weight, of small, whole corn and three parts each of kafir and field peas, and one part each of hard, red wheat and millet seed, contains about 13.6 per cent crude protein, 70.5 per cent carbohydrates, 3.5 per cent crude fiber, and 3 per cent fat.

TABLE 1.—Average composition of pigeon feeds

| Feed | Moisture | Ash | Crude protein | Carbohydrates | | Fat or ether extract |
|--------------------------|-----------------|-----------------|-----------------|-----------------|-----------------------|----------------------|
| | | | | Crude fiber | Nitrogen-free extract | |
| | <i>Per cent</i> | <i>Per cent</i> | <i>Per cent</i> | <i>Per cent</i> | <i>Per cent</i> | <i>Per cent</i> |
| Corn..... | 12.9 | 1.3 | 9.3 | 1.9 | 70.3 | 4.3 |
| Cowpeas..... | 9.8 | 3.6 | 23.8 | 4.3 | 57.1 | 1.4 |
| Field peas (Canada)..... | 9.2 | 3.4 | 22.9 | 5.6 | 57.8 | 1.1 |
| Flaxseed..... | 9.2 | 4.3 | 22.6 | 7.1 | 23.2 | 33.7 |
| Garden peas..... | 11.8 | 3.0 | 25.6 | 4.4 | 53.6 | 1.6 |
| Hempseed..... | 8.0 | 2.0 | 10.0 | 14.0 | 45.0 | 21.0 |
| Kafir..... | 9.4 | 1.6 | 11.1 | 2.1 | 72.6 | 3.2 |
| Millet..... | 10.8 | 3.6 | 12.1 | 8.4 | 61.0 | 4.1 |
| Milo..... | 10.7 | 2.8 | 10.7 | 2.4 | 70.5 | 2.9 |
| Peanut kernels..... | 5.5 | 2.3 | 30.2 | 2.8 | 11.6 | 47.6 |
| Rapeseed..... | 14.0 | 3.9 | 19.4 | 7.8 | 16.4 | 38.5 |
| Rice (polished)..... | 12.3 | .5 | 7.4 | .4 | 79.0 | .4 |
| Soybeans..... | 6.4 | 4.8 | 39.1 | 5.2 | 25.8 | 18.7 |
| Sunflower seed..... | 6.9 | 3.1 | 16.1 | 27.9 | 21.3 | 24.7 |
| Wheat..... | 10.6 | 1.8 | 12.3 | 2.4 | 71.1 | 1.8 |

The grain is usually kept before the birds in hoppers but may be fed on the floor of the pen or in troughs. It is not advisable to feed the grain on the ground, especially on heavy soil, where it may get wet and moldy. Unless the floor is kept clean it is better to feed the grain in troughs than on the floor. The troughs should be made so that the pigeons will not roost on them and soil the feed with their droppings. Hoppers in which feed is kept before the pigeons are sometimes used, but may attract rats. Troughs and open hoppers should be fitted with wires or slats about 2 inches apart, so that the pigeons can not waste the feed by throwing it out on the floor.

If the grain is not kept in hoppers the pigeons should be fed regularly twice daily, giving from $1\frac{3}{4}$ to $2\frac{1}{2}$ quarts or $2\frac{1}{4}$ to $3\frac{1}{4}$ pounds of grain at each feeding to 20 pairs of pigeons, depending on the size of the pigeons and the number of squabs in the nests. It is very essential that the pigeons have a plentiful supply of grain while they

are rearing squabs. The feeder must regulate the quantity of grain according to the appetite of the birds, giving them all they will clean up in one hour. A pair of Homers will eat about 80 pounds and Kings about 110 pounds of feed in a year, which, in 1929, cost, respectively, \$2.56 and \$3.52 a year at \$3.20 for 100 pounds. Prices of grains in 1929 were about the same as in 1927 and 1928.

Clean drinking water, fine grit, oyster shell, and charcoal should always be kept before the pigeons. Salt is essential but should be fed in either a mineral mixture or in brick form, such as rock salt. Commercial mineral mixtures containing salt, medium limestone grit, oyster shell, charcoal, and various minerals are used by many pigeon raisers. A good mixture for this purpose may be made of 40 pounds of medium oyster shell, 34 pounds of medium limestone grit, 10



FIGURE 8.—Shed-roof pigeon house with partly open front. Attached fly contains a concrete bathing and drinking basin supplied with running water

pounds of charcoal, 5 pounds of ground bone, 5 pounds of ground limestone, 5 pounds of fine salt, and 1 pound of Venetian red. Dissolve the salt in a gallon of hot water before mixing it with the other ingredients. Such mixtures are relished by the pigeons and help to keep them in good breeding and feeding condition.

MANURE

Dry pigeon manure may be sold to market gardeners or florists in some localities at a good price, but it is more commonly used at home as a fertilizer. As it is rather rich it has considerable value as a fertilizer and should be mixed with dry dirt or some filling material before it is used. It used to be sold to tanners, but artificial preparations have largely replaced manure for tanning.

PIGEON HOUSES AND EQUIPMENT

The important considerations in building pigeon houses are fresh air, sunlight, economy of labor, material, and space enough to keep the pigeons comfortable. Fresh air is essential in a pigeon house. Pigeons will do well in a cold house provided it is well ventilated. Dryness is also necessary. Not only should the building be tight to keep rain out, but the moisture from the pigeons and from the nests of squabs within the house must be carried off by ventilation. The more sunlight in the house the better, as it helps to dry out the moisture and also makes the building more sanitary. These houses should face the south, so that they will have the greatest amount of direct sunlight in the front. As labor is a big item, the arrangement of the house for convenience in performing the necessary work adds to the chances of success.

The shed-roof type of house shown in Figure 8 is one of the simplest and best types to use for market-squab production. The house is 16 feet deep, 6 feet high in the rear, and 8 feet high in front.

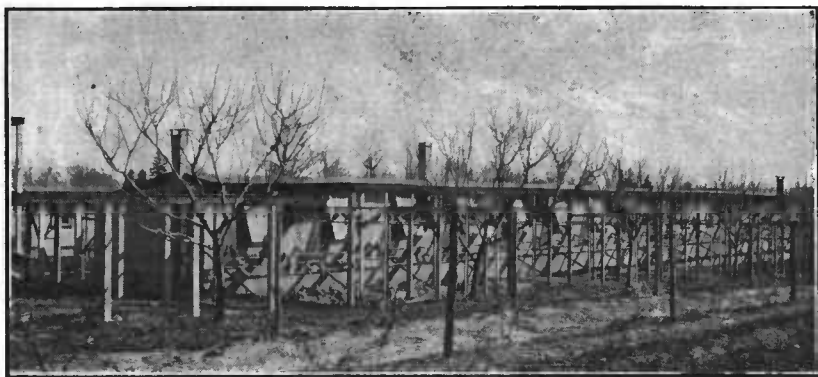


FIGURE 9.—Hip-roof pigeon house (used in New Jersey)

The pens are 9 by 12 feet, with a 4-foot alleyway in the back part running the entire length of the house. The alley is 4 feet wide to provide space for feed hoppers and boxes for grit, shell, and tobacco stems, for which devices are built into the alley partition, so that they can be filled without going into the pens. (Fig. 12.) An alley 3 feet wide is large enough for all other purposes. The pens are arranged to open into the alley, so that the pigeons will not be disturbed any more than is absolutely necessary. A separate alleyway is always desirable in a house which contains more than four pens.

Other styles of houses and outside yards or "flies" are shown in Figures 9 and 10. Houses of various styles may be used for pigeons, and in many cases where only a few are kept available buildings, such as lofts of barns and vacant poultry houses, can be fitted up at small cost. Details of the construction of houses are given in Farmers' Bulletin 1554, Poultry Houses and Fixtures. The same kind of lumber and style of construction are used for pigeon as for poultry houses, except that pigeon houses must be well built and

tightly constructed to make the pens comfortable during cold weather.

Construction costs are affected by many local factors, so that only a very rough estimate of the probable outlay for construction can be given. The estimated cost for the 3-year period 1927-1929 was from \$2 to \$3 for each pair of breeders housed. The cost for materials alone would be about two-thirds of the total construction cost.

More open and less expensive pigeon houses may be built in mild than in cold climates, but the house must be comfortable in cold weather. The building should be tightly constructed on the north, west, and east sides to prevent drafts, and the opening in the south side should be arranged so that the sunshine can thoroughly dry out the pen. The fronts shown in Figure 8, which are adapted for conditions around Washington, D. C., and points south, are never closed. Figure 9 shows a style of front adapted for sections farther north. The openings in both of the houses are protected to keep rain from beating into the pen.

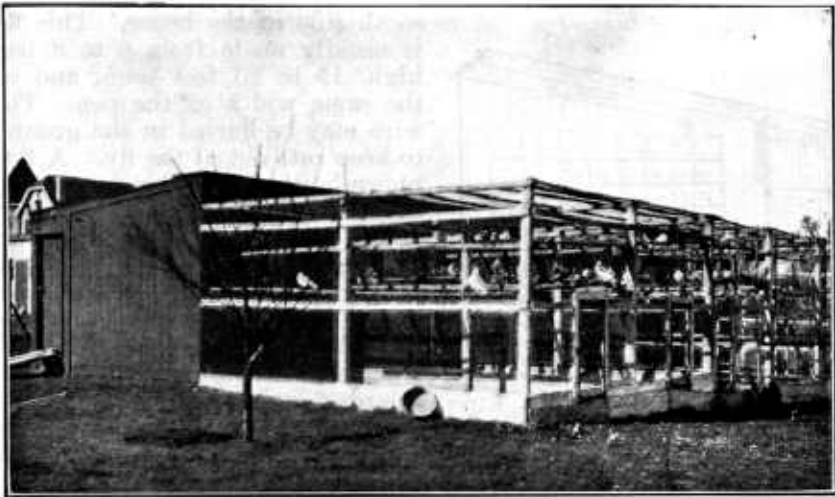


FIGURE 10.—Pigeon house and fly. Note bath pan against fence

Artificial heat is used to some extent in pigeon houses and heat enough to keep the house dry and comfortable (about 40° F.) tends to increase squab production during the winter months. Good ventilation must also be provided. If double or insulated walls are built, they must be arranged so as not to harbor rats.

The house may be made any length desired, the best length being governed by the number of pigeons to be housed and by the slope of the land.

The necessary floor space to allow for each pair varies from 2½ to 3¼ square feet, according to the size of the pigeons. More floor space per pair is required in small than in large pens. Pens 8 by 12 feet will accommodate 30 pairs of large pigeons, or 40 pairs of Homers, which is as many as should be kept together in one pen.

House 8x12 ft 24 pairs
(7 pairs)
including bath 160 to 190.00
1932

It is very difficult to keep a record of the breeding if more pairs than this are kept together. A separate pen for each pair of pigeons is sometimes made for Runts, as that breed does not do so well where any considerable number of breeders are kept together.

FLOORS AND FLIES

The floors of pigeon houses should be constructed so that they can be kept free from rats easily. This may be accomplished by building the house from 18 to 30 inches above the ground, using board floors, and boarding up the space between the ground and the floor, but leaving small doors or openings for ventilation and so that cats and dogs can get under the house. Wooden floors so constructed should be double, with building paper between the layers, except in the southern part of the United States. Concrete makes a very good floor for a pigeon house, as it will keep rats out, but it must be well covered with sand or straw.

Nearly all pigeons kept for squab production are confined by the use of an outside fly or yard covered with wire, which is built on the south side of the house. This fly is usually made from 6 to 8 feet high, 15 to 20 feet long, and of the same width as the pen. The wire may be buried in the ground to keep rats out of the fly. A few pigeonholes about 8 inches in diameter are made in the upper part of the front of the pen, as shown in Figure 9. Larger openings, oblong in shape, are sometimes used. No holes are needed in the house shown in Figure 8, as the front of the house is never closed.

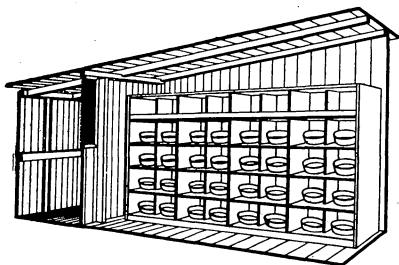


FIGURE 11.—Interior of pigeon pen, with nests arranged in pairs. The upper tier shows the use of a retaining strip in place of individual nest bowls.

Boards 6 inches wide on which the pigeons can light should be placed at the bottom of all pigeonholes on both the outside and inside of the house. Roosting boards about 4 inches wide are placed only at the end and on the sides of the fly, as shown in the accompanying illustrations. (Figs. 8, 9, and 10.) These boards should be at least 4 inches from the outside wire and should not be placed where they will prevent the pigeons from flying freely in the yards. Two-inch mesh wire is commonly used to cover the fly, but 1 inch mesh wire is preferable in localities where sparrows are abundant.

INTERIOR FIXTURES

The interior fittings should consist of a double nest for each pair of breeders, nest bowls, and miscellaneous equipment, such as feed hoppers and a receptacle for tobacco stems. All this equipment should be as simple as possible and easy to clean. Double nests are necessary because the pigeons frequently begin to build another nest when their squabs are only 2 weeks old. There should be only as many double units as there are mated pairs, and any additional nests in the pens should be kept closed. Portable wire fronts are used to close these extra nests and are also used to confine pigeons which are mating when the nests are used as mating coops.

Nest compartments should be 12 inches high, 16 inches deep, and 24 inches wide, divided into two parts, as shown in Figure 11. Double nests for very large breeds, such as the Runt, should be 2 inches deeper and 4 inches wider than for the medium-sized breeds. The partition in each double nest is set back 4 inches from the front of the nest to provide a runway for the pigeons. This allows each pair to control its own nest but tends to prevent them from fighting with neighboring pairs. This type of nest provides room for both roosting and nesting so that no separate roosts have to be provided on the walls. The floors of the nests should be arranged so that they are portable and may be easily cleaned. The nests are usually built in tiers against the side walls of the pen, extending from the floor to 6 or 7 feet high. (Figs. 7 and 11.) Two nest bowls are usually provided for each pair of breeders and help to keep the nests sanitary. Such bowls are made of earthenware, wood, or fiber. A convenient size is from 3 to 4 inches deep and 8 to 10 inches in diameter. Nest pans are not used at all in some pigeon plants, in which case the nesting material is retained by the strip in the front of the nests, as shown in Figure 7.

Only a small quantity of nesting material is kept in each pen, as the pigeons are apt to waste much of it if there is an abundant supply. Straw, coarse hay, and tobacco stems are used for this purpose. This nesting material may be kept in a slatted crate from which the pigeons may collect the pieces and build their own nests. A thin layer of sand on the floor makes it easier to keep the pen clean, or the floor may be lightly covered with straw or sawdust.

Hoppers and feed troughs should be of good size, and the hoppers should be constructed so that the pigeons can not waste the grain easily by throwing it out on the floor. Drinking fountains, hoppers for feed, grit, and shell, and boxes for the nesting material should be arranged so that they can be readily handled from the alley. They are often built into the partition which separates the alley from the pens. (Fig. 12.) Drinking vessels should be arranged so that the pigeons can not bathe in them. Large pans covered with wire, or fountains as shown in Figure 13, are best adapted for the purpose. A galvanized-iron pan from 3 to 4 inches deep and from 15 to 20 inches in diameter makes a good bath pan. Water for bathing should be provided daily in the yard, except during stormy, cold weather. These bath pans are usually filled in the morning and



FIGURE 12.—Alley in rear of pigeon house, showing arrangement of feed hoppers

emptied about one hour later. They are generally used only on sunny days in winter. It is very important that the bathing pans be kept clean, as the pigeons will drink out of them. If the pigeons drink filthy water its use may seriously affect the health and growth of the squabs. An outside watering and bathing basin which is supplied with running water makes an ideal arrangement.

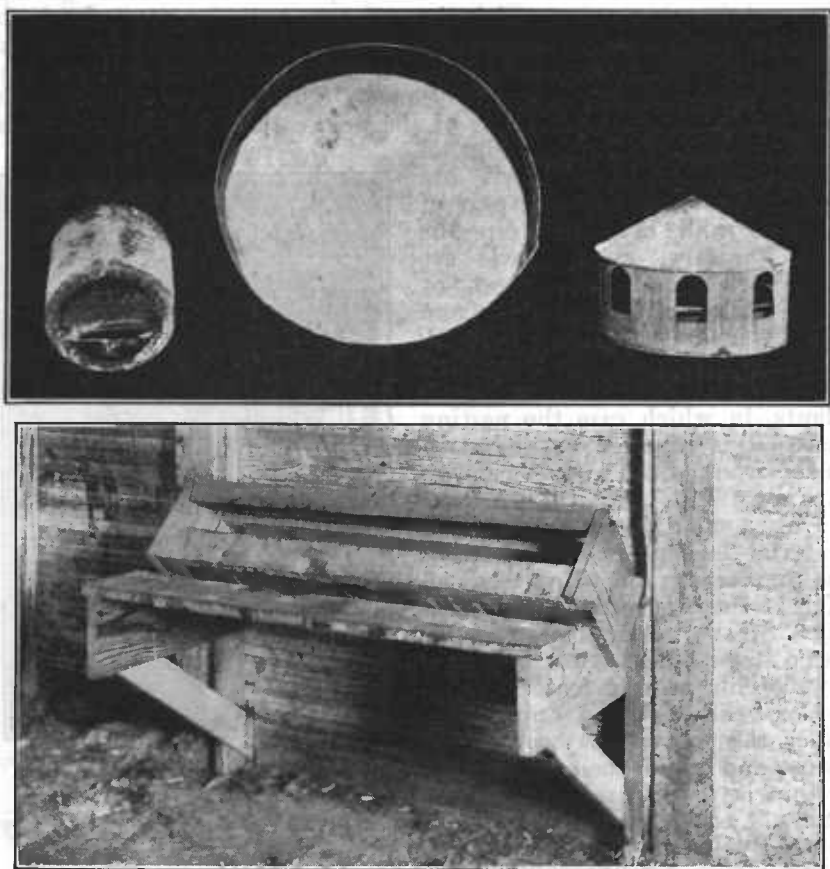


FIGURE 13.—Above: Water founts with bath pan in center. Below: Feed hopper with a revolving rod on top. This hopper may be placed away from the wall so that the pigeons can eat from either side.

MARKETING THE SQUABS

The production of squabs from each pair of breeders varies from 1 or 2 to as high as 10 or 11 pairs a year, but an average of 6 or 7 pairs of the large breeds fit for market, and 7 or 8 pairs of the smaller breeds is a fair average. By careful selection and culling, the yearly average may be increased 1 or 2 pairs. Squabs usually sell at the highest prices per pound during cold weather, as pigeons do not breed so freely then as in spring. The quality of winter squabs is not so good as that of spring squabs, and those produced

in the winter do not usually grow so well as those produced in spring and summer.

The price paid for dressed squabs varies with their size and quality, with the season of the year, and with the market location. The average monthly price per pound on dressed squabs weighing 11 pounds to the dozen, which is a fair average weight for good squab plants, was as follows, according to the wholesale quotation in New York for the 3-year period 1927 to 1929: January and February, 80 cents; March, April, and May, 65 cents; June through September, 55 cents; October, 60 cents; November and December, 70 cents. Prices in 1929 were lower than in either 1928 or 1927. Squab weights vary according to the breed and are also affected by feeding and by the selection of the breeders. Homer squabs usually weigh from 8 to 11 pounds to the dozen; Carneau, 10 to 13 pounds; Kings, 11 to 14 pounds, and Swiss Mondaines, 14 to 17 pounds. Small and dark-skinned squabs bring lower and extra large squabs slightly higher prices than these quotations.

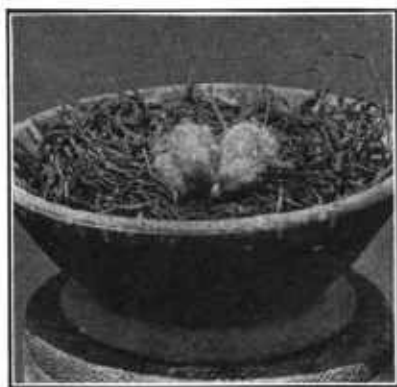


FIGURE 14.—Squabs 24 hours old



FIGURE 15.—Squabs only 7 days old but several times larger than when hatched

Squabs are fed by the parent birds until they are marketed. They grow very rapidly and attain more than two-thirds of their mature weight in four weeks. Squabs at various ages are shown in Figures 14, 15, 16, 17, and on the title page.

Squabs are marketed at from 3 to 4 weeks of age, before they are able to leave their nest. They must be sold at about this age, as the period during which they are ready for market rarely exceeds one week. Squabs are in good market condition when fully feathered under the wings, which is usually about the time they begin to leave their nests, and if not marketed at that time they soon lose their baby fat, while their flesh begins to get hard and loses its especially desirable character. (Figs. 18 and 19.) It is said that the flesh and juices of the squab at about 4 weeks of age are especially nourishing.

Market squabs should be collected from the nests early in the morning, before the pigeons are fed, at which time the squabs' crops are usually empty. They are usually killed in the same manner as poultry, by opening the mouth and cutting the jugular vein in the

throat just below the base of the skull, after which the brain is usually pierced. In sticking, the squabs are hung by their legs on nails or hooks, with their wings double locked. After they are stuck the feathers are plucked immediately, using a dull knife for the pinfeathers. The appearance of the dressed squabs can be improved by singeing the flesh over an alcohol burner. If the crop contains any feed it should be cut open and thoroughly washed. After killing and picking, the squabs are cooled by placing them in cold water or by hanging them in a cool place.

Dressed squabs should be washed, cleaned, and graded according to size and quality, as dark-colored and small squabs tend to lower the price paid for an entire shipment of mixed squabs. For shipment by express they are packed in cracked ice in a tub or box, with alternate layers of ice and squabs. The words "Dressed squabs" and the weight of the shipment before the ice is added should be marked on the box, as express companies allow 25 per cent off the gross weight for the ice packing. The box or tub should

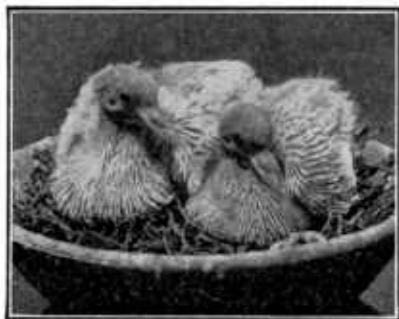


FIGURE 16.—Two weeks old and still growing rapidly



FIGURE 17.—Squabs 3 weeks old, (Squabs 4 weeks old are shown on cover page)

have holes in it for drainage. Local express shipments may sometimes be made without ice if the squabs are thoroughly cooled before shipment. Many squab plants are situated near enough to their market so that the producers can deliver the squabs direct, thus eliminating the express shipments and ice packing.

The express charges on small shipments of squabs reduce the profit materially, and it is necessary to have a good-sized flock to furnish more than a dozen birds for market at one time. A local market that will take any number of squabs is a great aid to the small producer. It usually pays best to build up a small flock until it is large enough to make good-sized shipments unless there is a good local market. This, however, requires constant expense without any return for some time.

SANITATION

The pens and yards where pigeons are confined must be kept clean. There is very little chance of making squab production profitable unless the pigeons can be kept comparatively free from diseases and insect parasites. Diseases and parasites should not be a serious

matter in squab raising, however, if healthy breeding stock is obtained and if houses and yards are kept clean and careful attention is given to the birds.

The stock should be carefully watched and any sick birds removed from the breeding pens. If one bird of a pair is sick the mate should also be removed.

The house should be kept dry, clean, well ventilated, and free from drafts. The floor should be covered with 1 inch of sand or gravel, and the manure deposited on top of the sand should be raked off frequently. The outside yards should be kept clean either by scraping the surface and adding fresh sand or gravel or by turning the soil over. The outside yard can be built with a concrete or wire floor, which is much more sanitary than one of dirt.



FIGURE 18.—Squab showing pinfeathers on underside of wing; not quite old enough for market



FIGURE 19.—Squab 4 weeks old; ready for market and fully feathered under the wing

The nests, nest boxes, and pens should be kept clean, but the individual nest bowls should not be cleaned out while they contain eggs or squabs. Each spring the entire pen should be thoroughly cleaned out; the cleaning should include scraping the floor and nests and washing them with lye water. A disinfectant or whitewash should be freely sprayed over the entire interior of the pen. A compound solution of cresol makes a good disinfectant, using 1 pint of this to 12 quarts of water. The nest boxes and perches should be examined for mites, especially in hot weather, and sprayed with crude oil thinned with kerosene or with a wood preservative containing anthracene oil, if mites are present. If the pigeons have many lice on their bodies and wings they should be treated with sodium fluoride, either by dusting by the pinch method or by dipping in a solution. The

treatment of lice and mites is discussed in Farmers' Bulletin 801, *Mites and Lice on Poultry*. The nests or nest pans should be cleaned and the nesting material removed as soon as the squabs are marketed or leave the nest.

Pigeons are subject to many of the diseases which affect poultry and may be treated in the same manner. Poultry diseases are discussed in Farmers' Bulletin 1337, *Diseases of Poultry*. Canker in the mouth and throat, and tuberculosis, which results in the birds' "going light," are the two diseases most common among pigeons. They are contagious and their spread is favored by insanitary conditions, foul drinking or bathing water, and poor quality or kinds of feeds. The unfavorable conditions should be removed at once, and potassium permanganate may be added to the drinking water, using enough powder to give the water a light wine color.

CAUSES OF THE DEATH OF SQUABS

The loss of squabs by death may result from a number of causes which have been discussed somewhat throughout this bulletin. The cause of mortality in each case must be found and removed if profitable results are to be expected. Some of the common causes are extra males or unmated pigeons, which are constant causes of fighting in the breeding pens, coccidiosis in the breeding stock, rats in the house, and lack of vitality because of carelessness in breeding and selecting the stock. Unthrifty squabs may be caused by the use of dirty water, poor quality of feed, lack of proper feed, and by filthy conditions in the pen. Good results can be obtained only when the loft contains selected, strong, healthy, mated breeders, when the quarters are kept clean, and when good feed is properly fed.

SUMMARY

Success in raising squabs requires careful consideration of certain factors.

The breeders should be healthy, vigorous, and properly mated. Good-quality foundation stock is very essential to success.

Only prolific breeders which are also good feeders should be kept.

A variety of good-quality, hard grains, including peas, should be fed. Grains that are thoroughly dry, and small, whole corn should be used.

The pigeon pen should be dry, well ventilated, and kept free of rats and mice. A double nest should be provided for each pair of breeders.

Keep fresh drinking water, protected from dirt, before the pigeons, and provide a separate pan of water for bathing.

The squabs must be marketed as soon as they are feathered under the wings, which is about the time they are able to get out of their nests.

ORGANIZATION OF THE UNITED STATES DEPARTMENT OF AGRICULTURE

May 14, 1930

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